

# Managing Early Detection of Mothers with High-Risk Pregnancy by Health Surveillance Workers for Maternal and Child Health in Declining Maternal Mortality in Semarang City

Nur Asia Hapsari Pratiwi, Sri Achadi Nugraheni, Apoina Kartini

Master of Public Health, Diponegoro University Semarang, Indonesia

Email: [nurpratiwi2013@gmail.com](mailto:nurpratiwi2013@gmail.com)

**Abstract**— Health Surveillance Workers for Mother and Child or *Tenaga Surveilans Kesehatan* (Gasurkes) KIA are mandated to decrease the number of maternal mortalities and increase the coverage for early detection of high-risk pregnancy. It was found that Gasurkes KIA can decline Maternal Mortality Rate and uplift the coverage for early detection of high-risk pregnancy in Semarang City. A good management practice may result in well-organized Gasurkes KIA. This study aimed to analyze the management of early detection conducted by Gasurkes KIA among mothers with high-risk pregnancy seen from the coverage for early detection practices. This study was a quantitative study using a cross-sectional design. The population is all Gasurkes KIAs in Semarang City, which then were retrieved to be 93 respondents as samples using total sampling technique. The inclusion criteria for the Gasurkes KIAs are that they have worked since 2008 and have not face validity test for questionnaires. Data from questionnaires were analyzed using Chi-Square test.

The findings explain that 66 Gasurkes KIA (71%) in the community village level have achieved the coverage for early detection of high-risk pregnancy. There is a relationship between early detection planning conducted by Gasurkes KIA among mothers with high-risk pregnancy and the coverage for early detection of high-risk pregnancy ( $p=0.024$ ). Also, there is a relationship between organization and coverage for early detection of high-risk pregnancy ( $p=0.010$ ). It was found that encouraging early detection of mothers with high-risk pregnancy conducted by Gasurkes KIA relates to the coverage for early detection for high-risk pregnancy ( $p=0.008$ ). Furthermore, supervision on early detection of mothers with high-risk pregnancy and the coverage for early detection of high-risk pregnancy ( $p=0.039$ ). Hence, Gasurkes KIA should improve the functions of management.

**Keywords**— Management, Gasurkes KIA, Coverage for Early Detection of High-Risk Pregnancy.

## I. INTRODUCTION

The decline of Maternal Mortality Rate (MMR) is one of Sustainable Development Goals in Indonesia. The Semarang District Health Office mentioned in 2014, Semarang City still has high MMR of 33 cases, while 35 cases in 2015.<sup>1</sup>

The maternal mortality usually occurs to mothers with high-risk pregnancy. High-risk pregnancy is pathology pregnancy, which can influence mother and infant condition. To face high-risk pregnancy, health workers and mothers should be proactive, have promotive and preventive actions as well as decide succinctly and quickly to save mothers and infants.<sup>2</sup> Seen from the coverage for early detection for high-

risk pregnancy as health workers observed around Semarang City is below national target at 20% and 10% in 2014.<sup>3</sup> Health workers should put attention on what they have done for early detection of high-risk pregnancy.

In 2016, Semarang District Health Office recruited health surveillance workers for maternal and child health or *Tenaga Surveilans Kesehatan* KIA (Gasurkes KIA).<sup>4</sup> The analysis of maternal and infant mortality data from Semarang District Health Office from 2016 to 2018 conclude that indicators for maternal and child health moderately achieved targets mainly because the MMR in Semarang City declined up to 32 cases in 2016, 23 cases in 2017, and 19 cases in 2018. Moreover, the coverage for high-risk pregnancy

achieved the national targets at 20% (25.8% in 2016, 28% in 2017, and 32% in 2018).<sup>56</sup>In 2018, Semarang Government was awarded by indoHCF innovation Awards for Maternal and Child Health category since they initiated healthy mother and child movementor *Gerakan Ibu dan Anak Sehat* (GIAT) and *Gasurkes KIA* programs.<sup>7</sup>The decline of MMR and the improvement of coverage for early detection of mothers with high-risk pregnancy which exceed the national target (30%) raise questions on how *Gasurkes KIA* manages their activities to achieve the targets.

Early detection of pregnancy aims to identify mothers with risks and complications in labor.<sup>8</sup>The early detection of mothers with high-risk pregnancy is to discover abnormal condition and pregnancy complications that should be treated, so mothers will not get hurt or jeopardized.<sup>9</sup> George R Terry mentions functions of management in four different manners, such as planning, organizing, encouraging, and supervising.<sup>10</sup>

To diminish the MMR, Semarang Government launched a recruitment for health surveillance workers (*Gasurkes*) by allocation a huge amount of Regional Development Budget II. Thus, it is expected that *Gasurkes KIA* as the motors for declining the MMR can perform optimally since their performance will determine the effectiveness of budget spent. In taking decisions and actions, *Gasurkes KIA* need a systematic work system which requires a good management.<sup>11</sup>

Looking into other studies in this field, Triana Widiastuti conducted a study in 2014 about managing early detection of mothers with high-risk pregnancy in antenatal care provided by primary healthcare centers in Jepara. Triana's study concludes that managing early detection of mothers with high-risk pregnancy is influenced by the functions of management on how it is planned, guided, and supervised.<sup>12</sup>

This study aimed to analyze the management of early detection of mothers with high-risk pregnancy, which was conducted by *Gasurkes KIA* to pursue the coverage of early detection of mothers with high-risk pregnancy in Semarang.

## II. METHOD

This quantitative study employs a cross-sectional design with independent variables, including planning, organizing, encouraging, and supervising. The dependent variable includes the coverage of early detection of mothers with high-risk pregnancy in Semarang. The population is 173 *Gasurkes KIA*s in Semarang City who have worked since

2018 in 177 community villages.<sup>11</sup>As samples, only 93 respondents selected by using total sampling technique participated in this study and met the inclusion criteria. The respondents have worked since 2018 and not faced questionnaires for validity test.

Primary data were collected using valid and reliable structured questionnaires which were distributed to all respondents. Meanwhile, secondary data include data of early detection coverage for high-risk pregnancy in community village level and supporting reports from direct records of primary healthcare centers in Semarang and Semarang District Health Office. The primary data and secondary data were analyzed using chi-square test to identify the relationship among independent variables and dependent variable. This study was conducted in primary healthcare centers of Semarang in February 2019.

## III. RESULTS AND DISCUSSION

### 3.1 Characteristics of *Gasurkes KIA*

Table 1 shows the analysis to describe respondent characteristics, which consist of age, latest education, and work period in *Gasurkes KIA*. There are three age categories, but most of the respondents (55.9%) are 21-25 years old. Most of them (91.4%) have diploma III degree, and nearly 50.5% of them have worked as *Gasurkes KIA* for 2-3 years. (Table 1).

Table 1. Frequency Distribution of Respondent Characteristics

Respondent Characteristics	N	%
Age Category:		
• 21-25 years	52	55.9
• 26-30 years	37	39.8
• >30 years	4	4.3
Latest Education:		
• D3 Nursing	85	91.4
• D4 Midwifery	8	8.6
• S1 Medical	0	0
• Doctor	0	0
Work Period:		
• 1 year	38	40.9
• 2-3 years	47	50.5
• >3 years	8	8.6

Source: Primary Data, 2018

### 1. Frequency of Respondents based on Achieved Coverage for Early Detection of High-Risk Pregnancy in Community Village Level

It can be seen from Table 2 that the achieved coverage of early detection for high-risk pregnancy occurs in

66 Community Villages (71%), but there are 27 Community Villages that did not achieve the target coverage (29%). (Tabel 2).

Table 2. Frequency of Respondents based on Achieved Coverage for Early Detection of High-Risk Pregnancy in Community Village Level

No		Achieved Coverage	
		F	%
1	Fulfilled	66	71,0
2	Not Fulfilled	27	29,0
Total		93	100

Source: Primary Data, 2018

### Chi-Square Test on the Relationship between Management of Early Detection of Mothers with High-Risk Pregnancy in Semarang

In Table 3, 45 respondents (100%) said that the relationship between planning and coverage for high-risk pregnancy in community level is deficient. There are 18 respondents (40%) who stated that the coverage target has not been achieved, but 27 respondents (60%) mentioned the opposite. In terms of planning for early detection of high-risk, 48 respondents (100%) argued that early detection planning has been run well. According to 9 respondents (18.75%), the coverage for early detection of high-risk pregnancy has not met targets, but 39 respondents (81.25%) stated that the coverage is achieved. The square test shows p-value of 0.024, which is less than  $\alpha$  value (0.05), meaning there is a relationship between plan made by the *Gasurkes KIA* and the coverage for early detection of high-risk pregnancy (Table 3).

Moreover, 50 respondents (100%) thought that the relationship of organization and coverage for early detection of high-risk pregnancy is not good in community village level. There are 21 respondents (42%) who have not met the target of coverage for early detection of high-risk pregnancy in community village level while 29 respondents (58%) have achieved the target. Out of 43 respondents (100%) who gave good response about the organization of early detection of high-risk pregnancy, there are 6 respondents (13.95%) who have not attained the target coverage in the community village level, but 37 respondents (86.05%) achieved the target. The square test finds p-value of 0.10, which is less than  $\alpha$  value (0.05), meaning that there is a relationship between organization and coverage for early detection of high-risk pregnancy (Table 3).

In terms of organizing function, there are 46 respondents (100%) who stated that the *Gasurkes KIA* did not organize early detection of high-risk pregnancy well. There are 19 respondents (41.3%) who have not completed the coverage target, but 27 respondents (58.7%) attained the target. Out of 47 respondents (100%) who mentioned good organization done by the *Gasurkes KIA* in early detection of high-risk pregnancy, 8 respondents (17.0%) have not achieved the coverage target while 39 respondents (83.0%) have already fulfilled the target. From the square test, it was found that p-value is 0.008 which is less than  $\alpha$  value (0.05), meaning there is a relationship between encouraging and coverage for early detection of high-risk pregnancy (Table 3).

In terms of supervision, 43 respondents (100%) thought that the *Gasurkes KIA* did not supervise early detection of high-risk pregnancy well. There are 17 respondents (39.53%) who did not fulfill the target. Whereas 26 respondents (60.47%) had good coverage. On the other hand, 50 respondents (100%) mentioned good supervision done by the *Gasurkes KIA*. Out of this total, only 10 respondents (20%) who have not completed the coverage target, but 40 of them (80%) gave good coverage. The square test also mentions p-value of 0.039, which is less than  $\alpha$  value (0.05). It means supervision has a relation with the coverage for early detection of high-risk pregnancy (Table 3).

Table 3: Bivariate Analysis of the Relationship among Independent Variables and Dependent Variable

Independent Variables and Dependent Variables						
Independent Variables	Coverage Target				Total	P-Value
	Not Achieved		Achieved			
	N	%	n	%		
A. Planning						
Not Good	18	40	27	60	45	0.024
Good	9	18.75	39	81.25	48	
B. Organizing						
Not Good	19	41.3	27	58.7	46	0.010
Good	8	17.0	39	83.0	47	
C. Encouraging						
Not Good						0.008
Good	18	42.86	24	57.14	42	
	9	17.65	42	82.35	51	
D. Supervising						
Not Good						0.039
Good	17	39.53	26	60.47	43	
	10	20	40	80	50	

Source: Primary data, 2018

### 3.1.1 Planning

The results show that planning has a good relationship with coverage for early detection of high-risk pregnancy in community village level of Semarang City. It happens because the respondents have planned the number of target society, target coverage, and supporting resources for the first time.

These findings are relevant to the previous qualitative research which found the relationship between planning as the functions of management and coverage for early detection of high-risk pregnancy. Planning contributes vitally to the management because it becomes a basic fundamental function for other functions of management.<sup>4</sup>

Effective planning needs experience, creative thinking, understanding, and feeling on activities that the health surveillance workers have planned. They need to concern about tangible (concrete) and intangible (unconcreted) factors which affect the planning. Planning helps them to make a decision on actions for now and future.<sup>10</sup> It also supports program to achieve effective and efficient goals.<sup>13</sup>

Planning for early detection of high-risk pregnancy attempts to determine the number of target society, target coverage, and resources (work, funding, and time) efficiently, so the target coverage can be achieved gradually. In 2018, the target coverage for early detection of high-risk pregnancy per community village should be fully fulfilled as primary healthcare centers and District Health Office have determined in a year program. As expected that this target can identify the minimum intensity of optimal maternal class in periodically controlling maternal condition at least four times classes. The implementation of optimal maternal class can decrease the MMR as the 5N program and the SDGs target.

In planning early detection of high-risk pregnancy, the *Gasurkes KIA* perform and form functions of management well, such as determining the number of target society, target coverage, and resources. Nevertheless, it was still found that some of them do not have proper functions of management.

### 3.1.2 Organizing

The relationship between organization and coverage for early detection of high-risk pregnancy shows that 46 respondents thought that organizing function carried out by the *Gasurkes KIA* is not good. There are 19 respondents (41.3%) who did not meet the coverage target for community village level, but 27 respondents (58.7%) achieved the target. Out of 47 respondents (100%) who gave good evaluation on

organizing function, there are 8 respondents (17.0%) who did not achieve the targeted coverage. Instead, 39 respondents (83.0%) fulfilled the target.

Organizing early detection of high-risk pregnancy is done by collecting primary resources effectively and efficiently and manage people in a system to execute planned activities and achieve goals. Organization can connect people whose tasks are interrelated.<sup>10,14</sup> Organizing is defined as involving variety of work and activities as efficiently as possible, so they can cooperate in doing tasks in a particular environment to achieve specific goals. In other words, organizing tunes different groups and various visions, as well as lead them to the same goal.<sup>10</sup>

Organization can give positive effects in encouraging and supervising early detection of high-risk pregnancy. Several hindering factors in achieving the target are that *Gasurkes KIA* rarely communicate each other, cooperate with regional cadres and village stakeholders, and lack of knowledge and attitude. External hindering factors are the far and elite domicile, lack of information, and reluctance of maternal check. If mothers live in elite housing area, *Gasurkes KIA* often get difficulties to visit them. Sometimes, some cadres lack of information about new laboring mother. If mothers live far away and cannot access where antenatal care is conducted. Also, mothers never do maternal check-up in primary healthcare centers or the nearest hospital. The previous study also shows the same that there is a relationship between knowledge and encouragement from the health workers towards early detection of high-risk pregnancy.<sup>8</sup>

The success of early detection of high-risk pregnancy is influenced by mother's behavior, individual willingness to health objects, family support, availability of information about health, freedom for decision-making, and situation that makes them act or not. A mother does not want to undergo early pregnancy detection because maybe they do not have intention and expect them pregnant (behavior intention). It happens because there is no family support nor social support. The third reason is lack of accessibility of information.<sup>15</sup>

The findings of this study show that the *Gasurkes KIA* who manage early detection of high-risk pregnancy makes the function of organization run better. It can be seen that the *Gasurkes KIA*, and other people in the program have known the goals of early detection of mothers with high-risk pregnancy. One of the goals is to prevent maternal complications and mortality which have unknown causes by having contact and visit mothers at least four times in a

month. Hence, the coverage for early detection of high-risk pregnancy is achieved.

Besides, the *Gasurkes KIA* have job division for themselves, cadres, other healthworkers, and village stakeholders in implementing early detection of mothers with high-risk pregnancy. The *Gasurkes KIA* delegate necessary authority to decide because the process of early detection passes several steps that different people get involved.

### 3.1.3 Encouraging

In this encouraging function, 42 respondents (100%) mentioned that the *Gasurkes KIA* have not encouraged early detection of high-risk pregnancy well. There are 18 respondents (42.86%) who have not achieved the targeted coverage, but 24 respondents (57.14%) have completed the target. Whereas, out of 51 respondents (100%) who have good response on their encouragement, 9 respondents (17.65%) did not achieve the target, but 42 respondents (82.35%) fulfilled it.

Encouragement is action to encourage team members to achieve a target. Encouragement comes from self-motivation to cooperate in the same line and harmony with other stakeholders so that they can develop and achieve goals.<sup>14</sup> Encouragement is expected to make team members cooperate efficiently, be keen on their work, develop skills and abilities to be good team member so that team goals can be achieved.<sup>1617</sup>

Encouragement in health sector nowadays applies to internal organization environment, but also cross-sectoral stakeholders to support health programs. Early detection of high-risk pregnancy requires team to collaborate with other stakeholders. The *Gasurkes KIA* need to maintain team motivation to do their task wholeheartedly and have strong responsibility to achieve the goals.

The results in this study show that the *Gasurkes KIA* have encouraged the team members well. They have been able to cooperate with cadres, village stakeholders, and other sectors efficiently and effectively in implementing early detection.

Function of management is related to the functions of planning and encouraging, which also are associated with the coverage target for early detection of high-risk pregnancy. Poor organization may result in weak coverage for early detection of high-risk pregnancy.<sup>18</sup>

### 3.1.4 Supervising

The supervision on early detection of high-risk pregnancy is considered bad by 43 respondents (100%). Out

of this total, there are 17 respondents (39.53%) who did not complete the coverage for early detection of high-risk pregnancy while 26 respondents (60.47%) achieved it. Out of 50 respondents (100%) who give good evaluation on the health workers' supervision, 10 of them (20%) did not achieve the target, but 40 of them (80%) mostly achieved it.

Supervision is interrelated with other functions of management, especially planning. Supervision ensures that planning is carried out well to perform the expected results.<sup>10</sup>

Supervision generally ascertains the execution of what have been planned. Besides, it also can identify various hindering factors and rectify the process to achieve the goals. Failure and ineffective as well as inefficient performance are normal in the process, so deviation might occur along the process of achieving the goals.<sup>14</sup>

The *Gasurkes KIA* have several supervising steps, such as supervision, monitoring, and evaluation. Without supervision, problems might still occur. For example, mothers with high-risk pregnancy (HBSag(+), HIV cases) do not get proper treatment during labor. Pregnant mothers have no contact with health workers because they do not go for antenatal care provided by primary healthcare centers or other health facilities, or they live in elite housing area. Another problem is lack of socialization and contact because the *Gasurkes KIA* do not conduct the program of early maternal detection in all areas. Moreover, pregnant mothers sometimes do not get blood test during pregnancy, or there is late identification of complication and late decision for treatment.

The results of this study explain that the *Gasurkes KIA* have executed early detection of high-risk pregnancy well by regularly and continuously supervising, socializing, and solving a problem for example for HBSag(+) cases. According to the *Gasurkes KIA*, this case will be under supervised by primary healthcare centers and District Health Office during labor, and mothers with HBSag(+) should get referred to proper hospital which provide complete facilities. Moreover, born baby has to receive vaccine which the District Health Office send to primary healthcare centers. Since early detection of high-risk pregnancy is targeted to cover most cases, supervision is required to improve its quality.<sup>19</sup>

Despite supervision, the *Gasurkes KIA* also monitor early detection of high-risk pregnancy based on the procedures. They routinely evaluate it to find out implementation results and process and compare it with targets, and send all reports to regional coordinator, primary



healthcare centers, and District Health Office daily, weekly, monthly, quarterly, and annually.

The other research found that supervision is the main function of management in achieving targeted coverage for a program.<sup>20</sup> If other three functions of management, including planning, organizing, and encouraging, is properly done, the health workers need little supervision.

#### IV. CONCLUSION

There is a relationship among functions of management, including planning ( $p$ -value= 0.024), organizing ( $p$ -value= 0.010), encouraging ( $p$ -value= 0.008), and supervising ( $p$ -value= 0.039) early detection of high-risk pregnancy done by the *Gasurkes KIA* in order to improve the coverage in Semarang City.

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